



4 x 3 Chemovation
External Valve
GQ86000, GQ86002



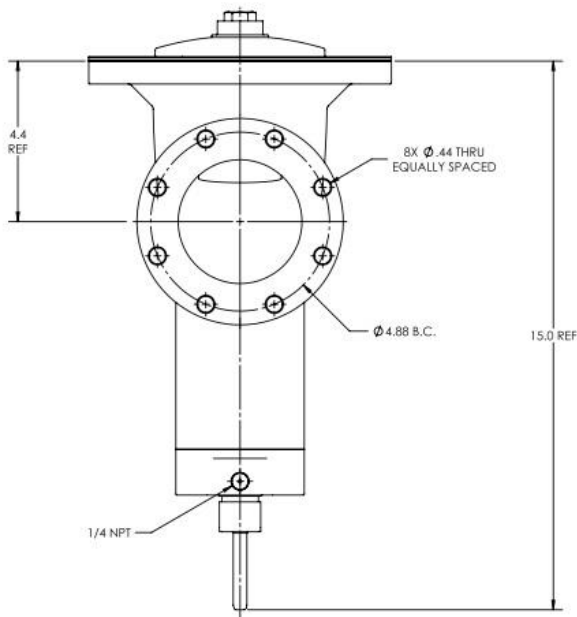
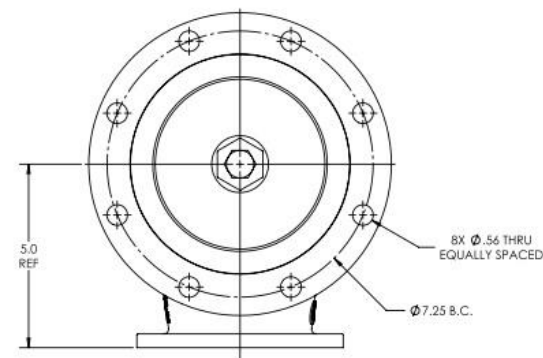
Emergency valve for use on DOT 407 tank trailers
transporting a variety of goods.

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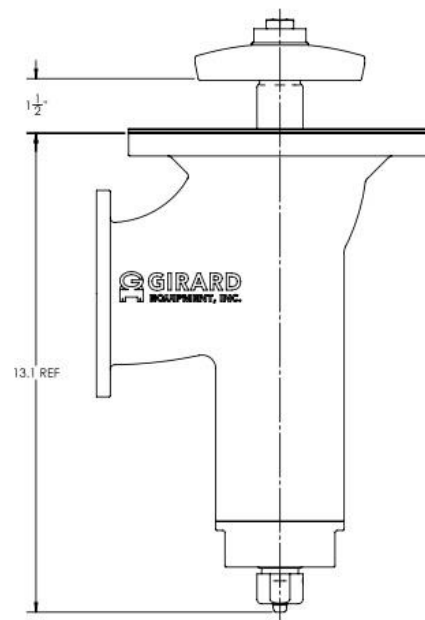
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Technical Data

- 1) Overall Height: 15.0"
- 2) Design pressure (MAWP): 50 PSI MAXIMUM
- 3) All components constructed from corrosion resistant 316 stainless steel
- 4) Mounts to standard 6" TTMA sump with 7.25" bolt circle
- 5) Outlet flange made to 3" TTMA standard
- 6) 1/4" NPT hydraulic connection
- 7) Teflon seals and gaskets for a broad range of chemical compatibility
- 8) Manufactured, assembled, and cast in the USA
- 9) Valve meets CFR Title 49, ADR Section 6, and ASME Section VIII design requirements for Bottom Outlet Valves
- 10) Poppet may be ordered in Hastelloy® (GQ86058)

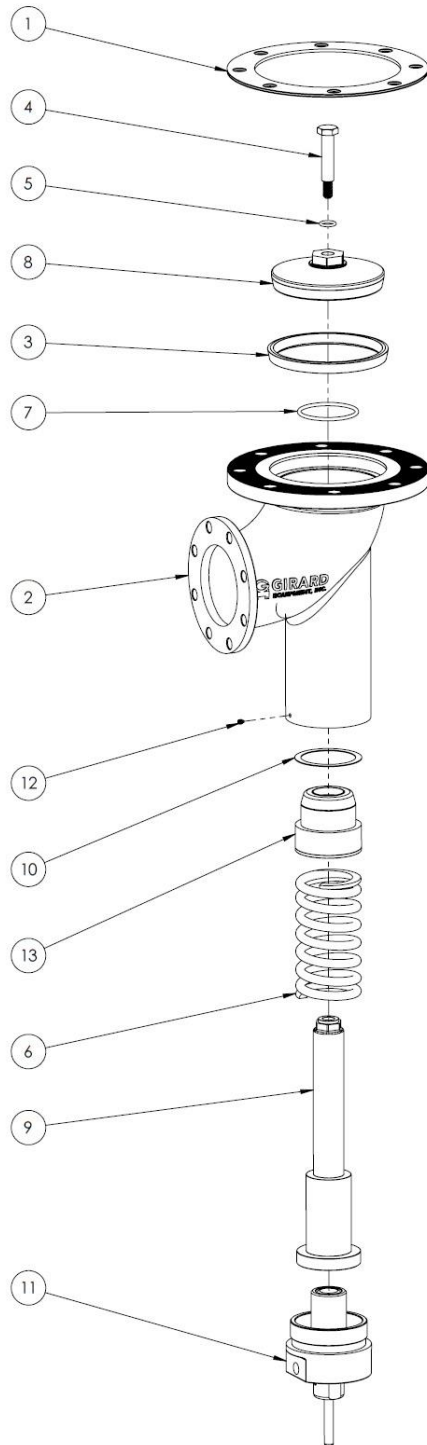


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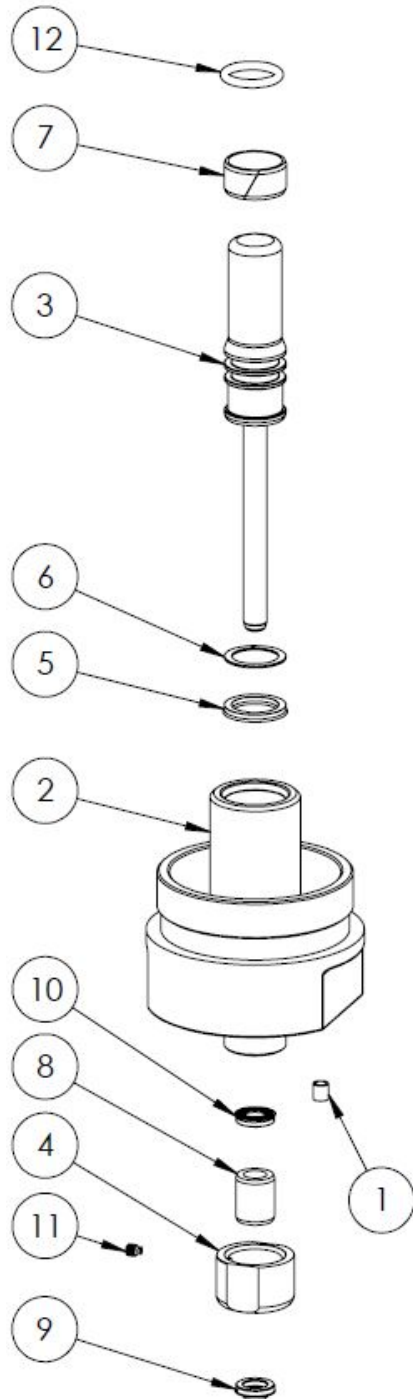
OPEN

Exploded View of Product (GQ86000)



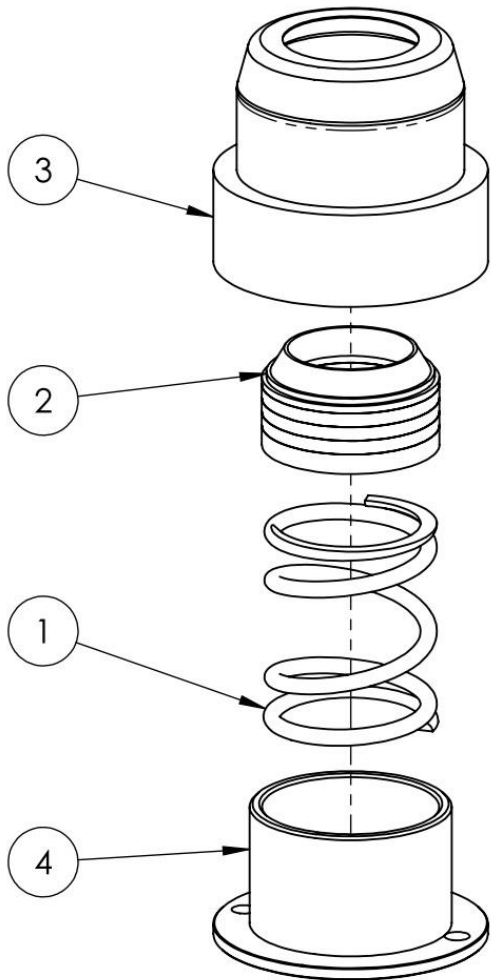
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GQ85035	CHEMOVATION VALVE ENVELOPE GASKET	1
2	GQ86010	CHEMOVATION EXTERNAL VALVE, MAIN BODY	1
3	GQ86020	CHEMOVATION EXTERNAL, TEFLON SEAT	1
4	GQ86025	CHEMOVATION EXTERNAL SHOULDER BOLT	1
5	GQ86030	-112 TEF-O-SIL O-RING	1
6	GQ86040	CHEMOVATION EXTERNAL, POPPET SPRING	1
7	GQ86055	-228 TEF-O-SIL O-RING	1
8	GQ86060	CHEMOVATION EXTERNAL VALVE, POPPET SS	1
9	GQ86067	CHEMOVATION EXTERNAL, POPPET STEM	1
10	GQ86085	CHEMOVATION EXTERNAL, SEAL RETAINER GASKET	1
11	GQ86100	CHEMOVATION EXTERNAL, HYDRAULIC ASSEMBLY	1
12	GQ86175	CHEMOVATION SET SCREW	1
13	GQ86200	CHEMOVATION EXTERNAL, PACKING SEAL RETAINER ASSEMBLY	1

Exploded View of Product (GQ86100)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GQ80635	BREATHER VENT	1
2	GQ86110	CHEMOVATION EXTERNAL HYDRAULIC HOUSING	1
3	GQ86122	CHEMOVATION EXTERNAL, HYDRAULIC PISTON	1
4	GQ86124	CHEMOVATION EXTERNAL ACTUATOR CAP	1
5	GQ86132	CHEMOVATION EXT X-PAC LOADED U-SEAL	1
6	GQ86134	CHEMOVATION EXT BACKUP RING	1
7	GQ86146	CHEMOVATION EXTERNAL GUIDE RING 1" OD X 1/2	1
8	GQ86150	CHEMOVATION EXTERNAL PTFE BUSHING 5/8 OD 3/8 ID	1
9	GQ86152	CHEMOVATION EXTERNAL DTW WIPER 3/8	1
10	GQ86172	CHEMOVATION EXT HYD. U-SEAL	1
11	GQ86175	CHEMOVATION SET SCREW	1
12	GQ86180	CHEMOVATION EXTERNAL VITON O-RING -210	1

Exploded View of Product (GQ86200)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GQ86045	CHEMOVATION EXTERNAL, PACKING SEAL SPRING	1
2	GQ86070	CHEMOVATION EXTERNAL, PACKING SEAL SET W/ WIPER	1
3	GQ86075	CHEMOVATION EXTERNAL, PACKING SEAL RETAINER, FEMALE	1
4	GQ86095	CHEMOVATION EXTERNAL, PACKING SEAL RETAINER, MALE	1

Safety

General Safety Information



WARNING: All Safety regulations must be followed during the operation of this product. Follow maintenance instructions as set forth in this manual to avoid serious injury. Do not attempt to disassemble the device unless you have been properly trained by a Girard Equipment representative.

Product Storage

- Temperature Range: -40°F to +250°F
- Humidity Range: N/A
- Altitude Range: N/A

Store device with the 3" flange face down, in its original container, to maintain a dust-free environment. We recommend that stored valves be retested every year or as required by DOT regulations. The initial test date will be listed on the valve certificate.

Product Handling

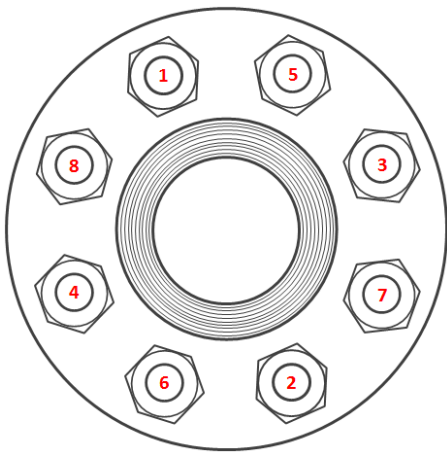
Follow OSHA practices for lifting of heavy objects.

Disposal Requirements

No Special Requirements.

Installation Instructions

- 1) Remove valve from packaging.
- 2) Insert new, clean gasket.
- 3) Align the valve with the sump at the bottom of the tank.
- 4) Girard Equipment recommends using new, non-lubricated, stainless steel studs and nuts to bolt device to tank container.



Torque Value: **45** FT/LBS. Dry +/- 10%.

NOTE: This is a guideline; customer needs to perform their own torque study.

Operation Instructions

NOTE: It is the responsibility of all persons performing the operation of the 4 x 3 Chemovation External Valve to read and understand this procedure before starting work. Before using a Girard valve with a hydraulic actuator, follow the procedure for bleeding hydraulic lines, located under the maintenance section of this manual.



Unloading procedure for GQ86000

CAUTION: Do not pressurize tank prior to opening internal valve

- 1) Open the chemical valve by pressurizing the hydraulic actuator (located at the bottom of the valve assembly).

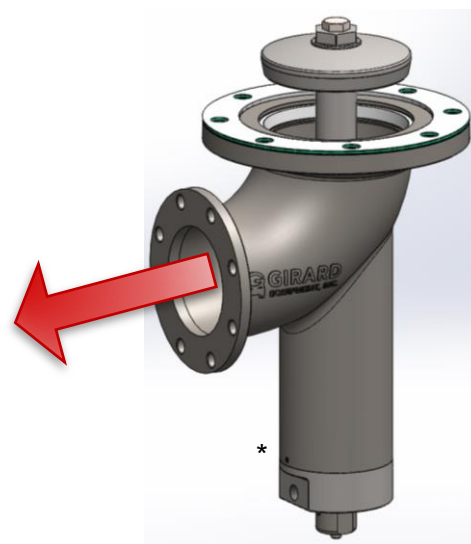
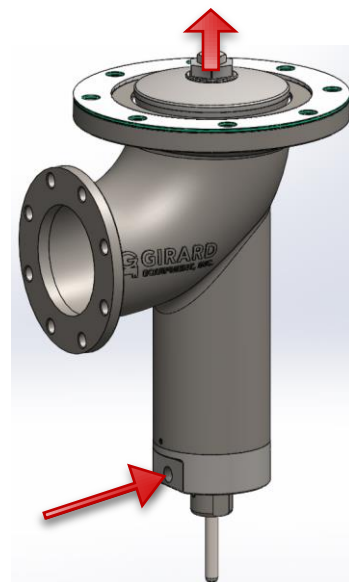
NOTE: In an emergency, the valve can be opened by lifting at the indicator pin.

- 2) Tank will now unload.
- 3) When finished unloading, close the chemical valve by relieving the pressure from the hydraulic actuator.

Loading Precautions:

Before loading the tank container, ensure that the Chemovation Valve is closed.

*Set screw at the bottom of the main body allows complete control of the location of the hydraulic port



Maintenance Instructions



Warning: Do not attempt to disassemble this device unless you have been properly trained by a Girard Equipment representative. Follow all installation, maintenance and repair instructions to avoid injury.

Gasket and Seal Maintenance

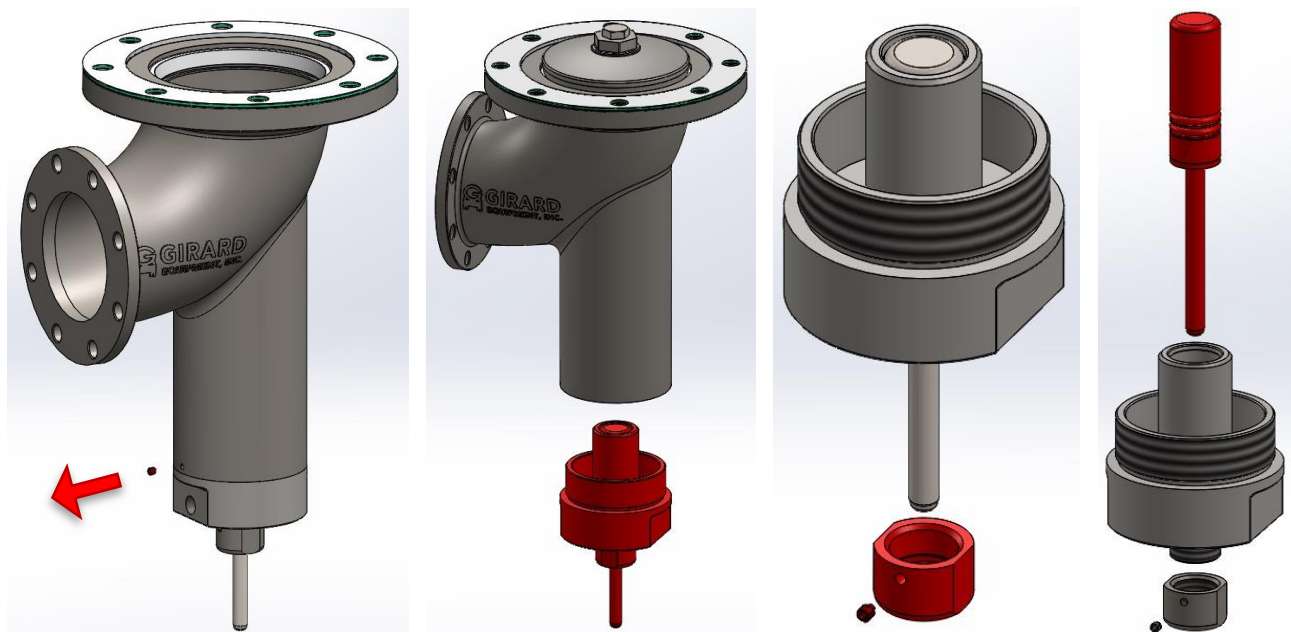
All soft goods should be replaced at time of regular maintenance and requalification.

Preparation

Relieve pressure from the Hydraulic Actuator and disconnect the hydraulic line and fitting from the Actuator Housing.

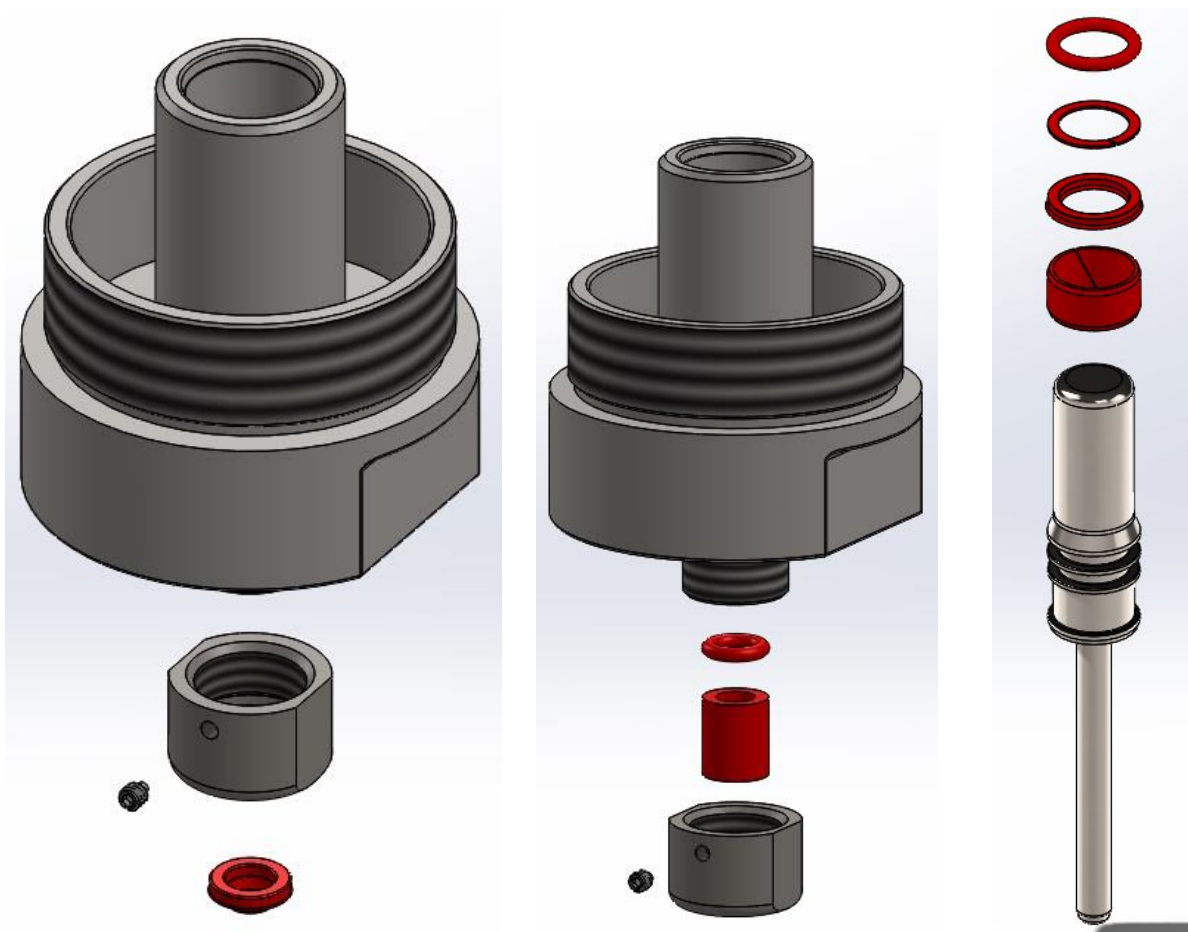
To Replace Hydraulic Actuator Seals (GQ86100)

- 1) Using a 3/32" hex key, loosen and remove the #10-24 Set Screw (GQ86175) from the Main Body (GQ86010).
- 2) Using either a large adjustable wrench or pipe wrench, loosen and remove the Hydraulic Actuator Assembly.
- 3) Using a 3/32" hex key and a crescent wrench, loosen and remove the #10-24 Set Screw (GQ86175) and the Actuator Cap (GQ86124).
- 4) Remove the Hydraulic Piston (GQ86122) with the O-Rings and Guide Ring.



- 5) Remove the 3/8" Wiper (GQ86152) from the Actuator Cap (GQ86124) and replace.
- 6) Remove the PTFE Bushing (GQ86150) and the Viton O-Ring (GQ86170) from the Hydraulic Housing (GQ86110) and replace.
- 7) Remove the Viton O-Ring (GQ86180), the X-Pac Loaded U-Seal (GQ86132), the Backup Ring (GQ86134) and the 1" OD Guide Ring (GQ86146) from the Hydraulic Piston (GQ86122) and replace.
- 8) Re-assemble the Hydraulic Actuator and re-install to the valve following steps 1-3 in reverse order.

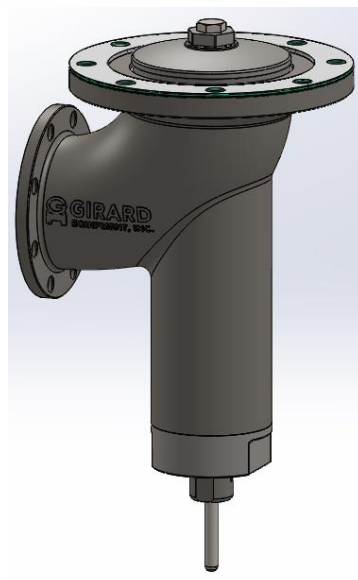
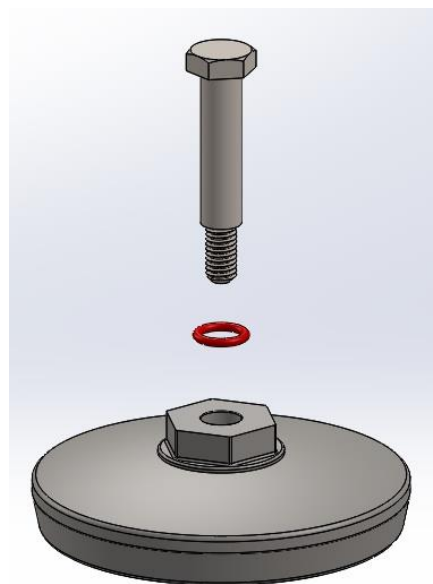
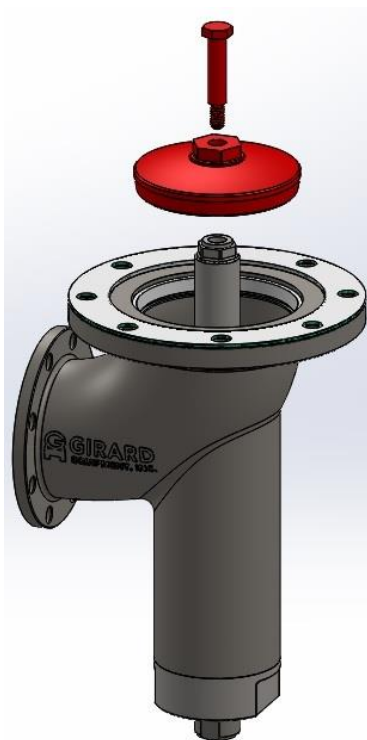
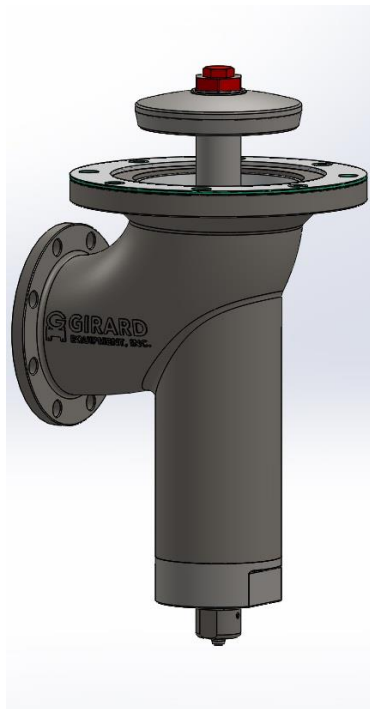
NOTE: The Hydraulic Actuator can be removed and serviced with the valve still mounted and a tank full of product.



To Replace the Chemovation External Valve Poppet O-Ring (GQ86030)

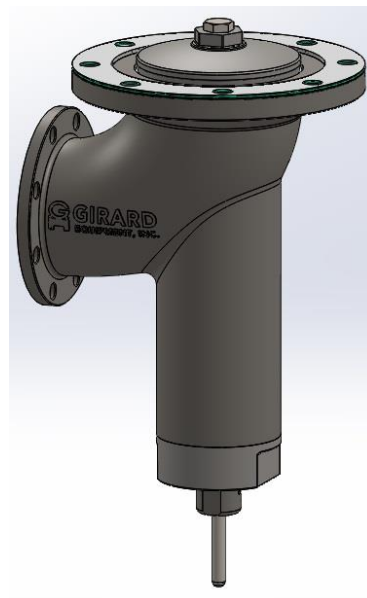
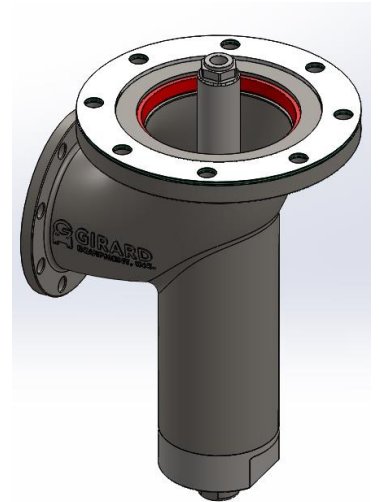
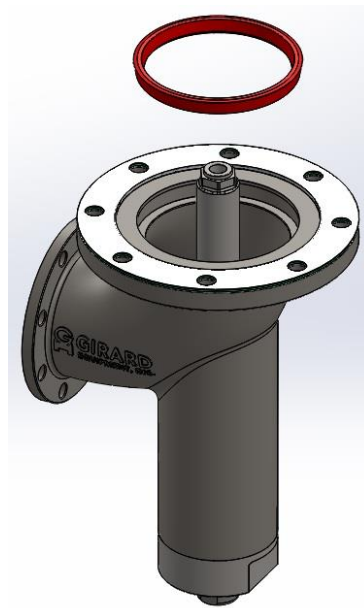
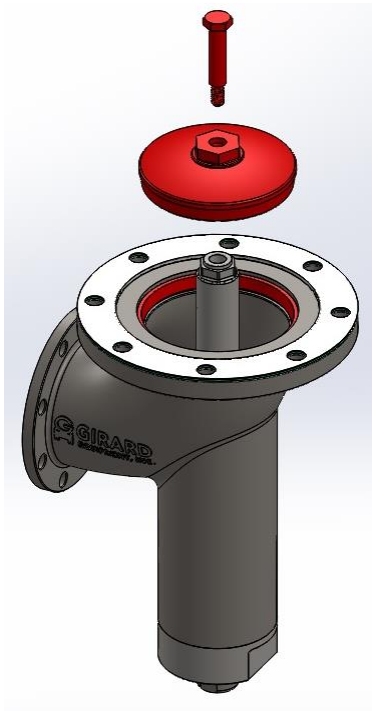
- 1) Fully open the valve by pressurizing the Hydraulic Actuator (see Operation Instructions).
- 2) Using a large crescent wrench and a $\frac{3}{4}$ " socket wrench, firmly hold the Poppet (GQ86060) and loosen the Shoulder Bolt (GQ86025) and remove from the Poppet.
- 3) Remove the O-Ring (GQ86030) from the Poppet and replace.
- 4) Re-assemble the Poppet and Stem following steps 1-2 in reverse order, re-close the valve.

NOTE: Follow these instructions for replacing the Poppet (GQ86060) and Shoulder Bolt (GQ86025).



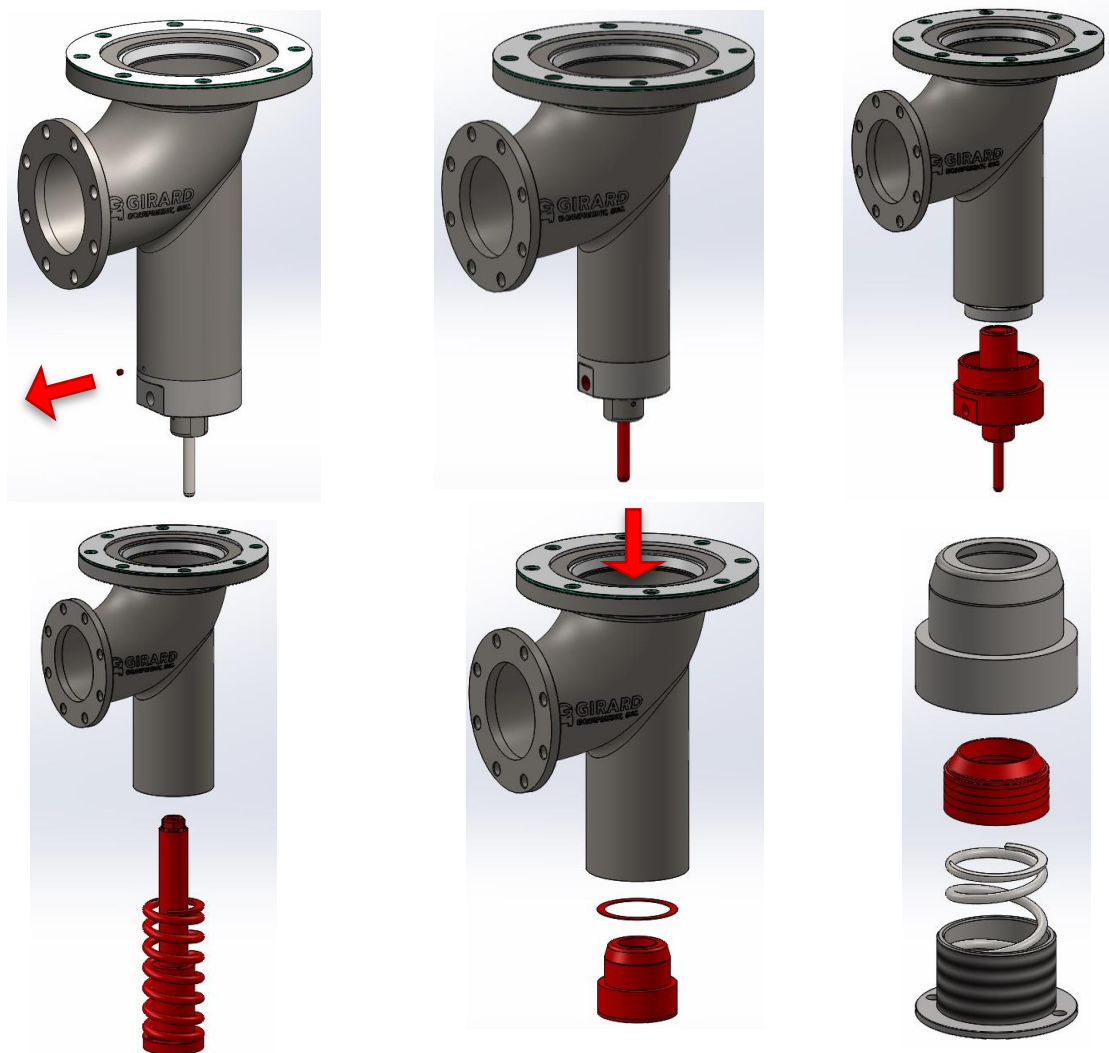
To Replace the Chemovation External Teflon® Seat (GQ86020)

- 1) To access the Teflon® Seat (GQ86020), follow steps 1-2 for replacing the Poppet (GQ86060).
- 2) Remove the Teflon® Seat (GQ86020) and discard.
(seat may need to be cut or broken to remove)
- 3) Press in new Teflon® Seat (GQ86020).
- 4) Re-install the Poppet (GQ86060) and close the valve.

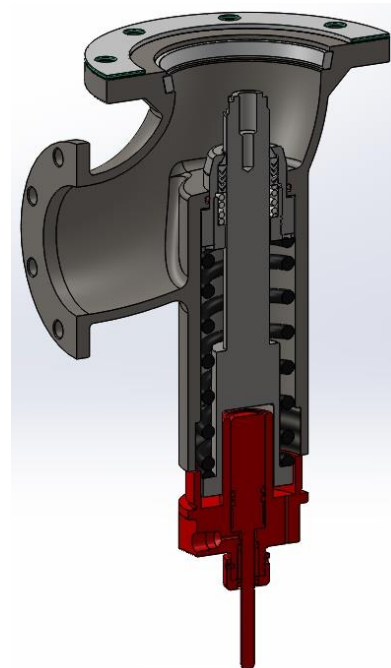
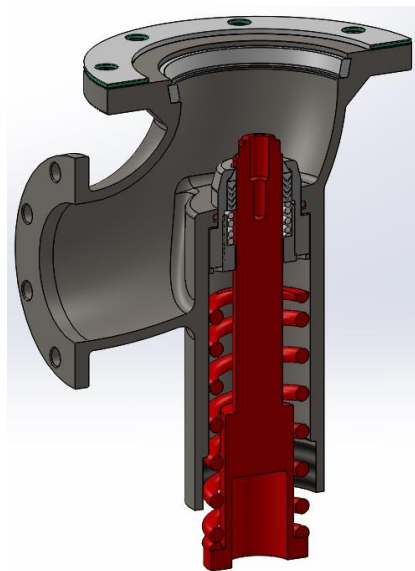
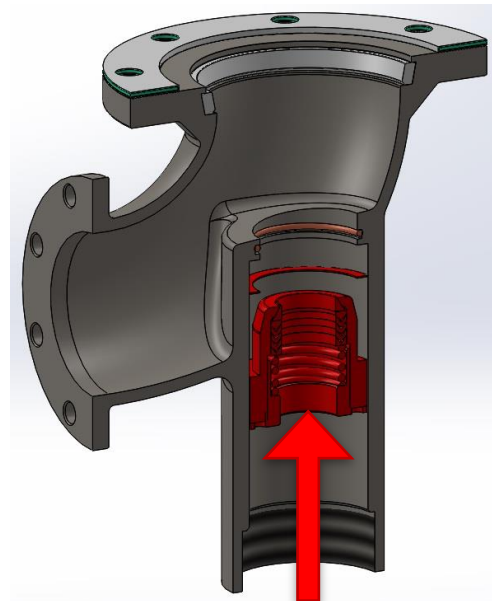
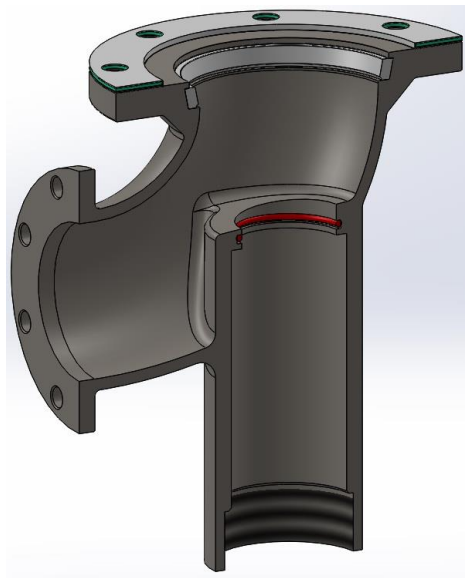


To Replace the Chemovation External Poppet Stem Seals (GQ86020)

- 1) To access the internal seals, follow steps 2-4 for replacing the Poppet (GQ86060).
- 2) Remove the set screw from the main body (GQ86010).
- 3) Relieve the pressure from the Hydraulic Actuator (GQ86100) until the indicator pin is fully visible.
- 4) Using either a large adjustable wrench or pipe wrench, loosen and remove the Hydraulic Actuator Assembly (GQ86100).
- 5) Remove the Poppet Stem (GQ86067) and Poppet Spring (GQ86040).
- 6) Remove the Packing Seal Retainer Assembly (GQ86200) and the Seal Retainer Gasket (GQ86085) by pushing down on the Retainer Assembly from the top.
- 7) Loosen and remove the Male Retainer (GQ86095) along with the Packing Seal Spring (GQ86045) and Packing Seal Set with Wiper (GQ86070) from the Female Retainer (GQ86075).
- 8) Replace the Packing Seal Set (GQ86070) and re-assemble the Retainer Assembly (GQ86200).

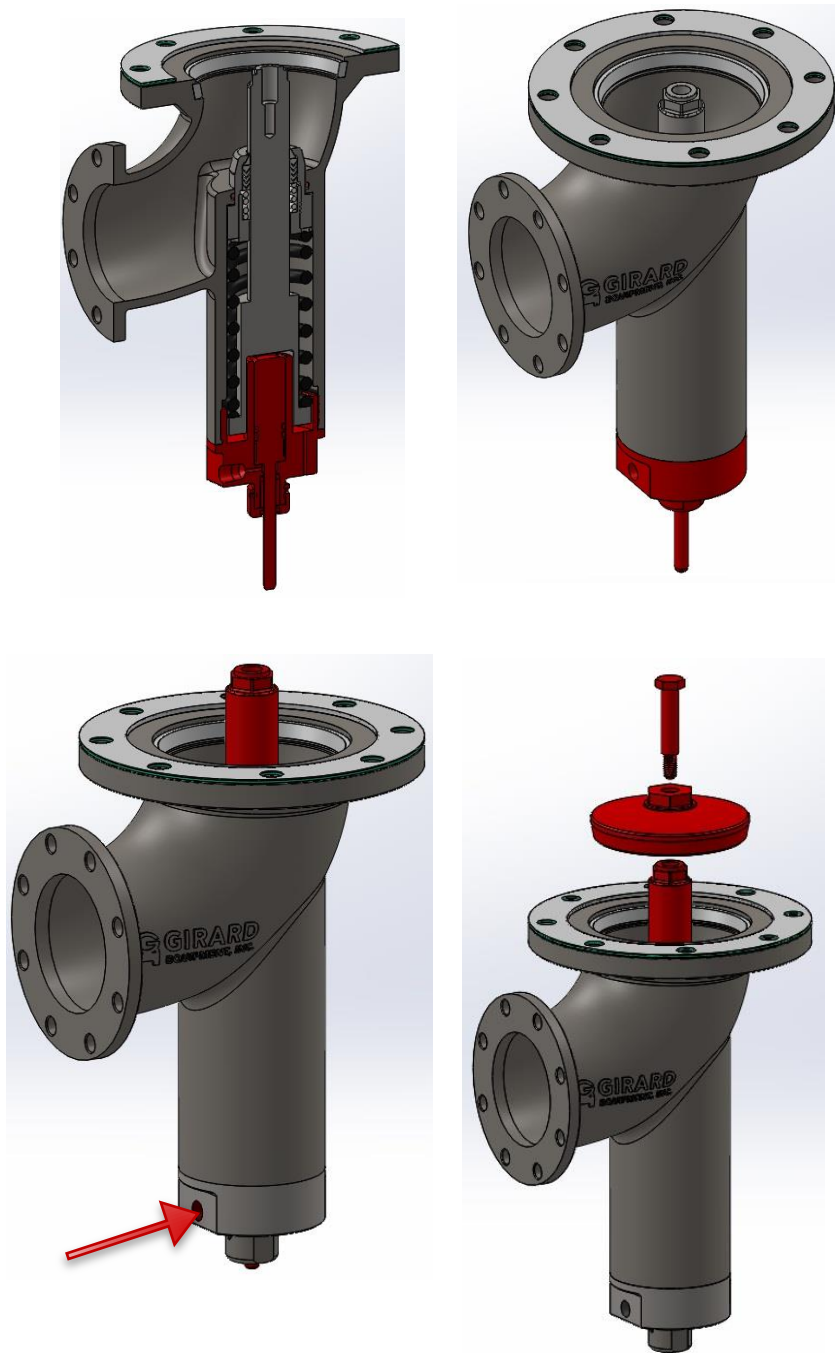


- 9) Remove the Tef-O-Sil O-Ring (GQ86055) from the O-Ring groove of Valve Main Body (GQ86010) and replace.
- 10) Insert the Packing Seal Retainer Assembly (GQ86200) with the new Packing Seal Set (GQ86070) and Seal Retainer Gasket (GQ86085).
- 11) Insert the Packing Seal Spring (GQ86045), Retainer Washer (GQ86095), Poppet Spring (GQ86040), and Poppet Stem (GQ86067) in this order, into the Valve Main Body (GQ86010).
- 12) Insert the Hydraulic Actuator Assembly (GQ86100) into the bottom of the Poppet Stem (GQ86067).



- 13) Using either a large adjustable wrench or pipe wrench, fully tighten the Hydraulic Actuator Assembly (GQ86100) to the Valve Main Body (GQ86010) to pre-load the Poppet Spring (GQ86040).
- 14) Connect hydraulic line to the Hydraulic Actuator Assembly (GQ86100) and fully open the valve (see Operation Instructions).
- 15) Fasten the Poppet (GQ86060) to the Stem (GQ86067) using the Shoulder Bolt (GQ86025).

NOTE: See instructions for replacing the Teflon Seat (GQ86020).



Test Instructions

Perform visual inspection and leakage test in accordance with DOT regulations 49 CFR 180.407 and any other regulations that may apply.

Troubleshooting & Repair Guide

If device doesn't seal properly:

1. Wipe sealing area with clean rag.
2. Ensure that the poppet is fastened tightly to the poppet stem.
3. Install new gaskets.
4. If problem cannot be corrected, contact a Girard Equipment representative.

If device doesn't open properly:

1. Bleed hydraulic lines.
2. Check the hydraulic actuator for leaks near the hydraulic line connection.
3. Install new seals.
4. If problem cannot be corrected, contact a Girard Equipment representative.

Replacement Parts

Replacement Parts for GQ86000

Seals: GQ86020 (TEFLON® SEAT), GQ86055 (TEF-O-SIL O-RING),
GQ86030 (TEF-O-SIL O-RING)
Gaskets: GQ85035 (ENVELOPE GASKET),
GQ86085 (SEAL RETAINER GASKET)
Additional: GQ86060 (POPPET), GQ86025 (SHOULDER BOLT)

Replacement Parts for GQ86100

Seals: GQ86152 (3/8 WIPER), GQ86170 (VITON® O-RING),
GQ86180 (VITON® O-RING), GQ86132 (X-PAC LOADED U-SEAL),
GQ86134 (BACKUP RING)
Bushings: GQ86146 (GUIDE RING), GQ86150 (PTFE BUSHING)
Additional: GQ86175 (SET SCREW)

Replacement Parts for GQ86200

Seals: GQ86070 (PACKING SEAL SET W/ WIPER)

For additional materials and options, contact Girard Equipment's Engineering Department.

Warranty

All goods manufactured by Girard Equipment, Inc. from “genuine” Girard parts are warranted to be free from defects and will be replaced free of charge if failure occurs within 5 years of the date of shipment (excludes O-Rings and gaskets), provided that these parts have been used in accordance with seller’s recommendations. Our liability in any case shall be limited to the sale price of the product and will not extend to any consequential damage.

Contact Information

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